

FACTSHEET

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Equine Morbillivirus

Equine morbillivirus (EMV) is a newly identified virus that primarily affects horses and causes acute respiratory disease. EMV also affects humans. In September 1994, the first reported outbreak of EMV occurred in Australia, involving 21 horses and 3 men. At that time, Australian Animal Health Laboratories isolated and identified EMV as a new type of morbillivirus.

EMV is classified in the family Paramyxoviridae along with related viruses that cause measles, canine distemper, and rinderpest. Genetic analysis of EMV indicates that this virus has existed for some time and is not a recent mutation of another established morbillivirus. Scientists presume that EMV has a mammalian host like other known morbilliviruses. However, the natural host of EMV remains unknown.

Clinical Signs

EMV appears to be highly virulent to horses, causing death in more than 65 percent of naturally infected horses. Experimentally, the virus has caused disease in laboratory cats and guinea pigs but not in mice, rabbits, chickens, or dogs.

In horses, the incubation period ranges from 8 to 11 days after exposure. There is no known treatment or cure. Initially, infected horses may lose their appetite and appear depressed. Body temperature often rises up to 41 degrees Celsius or 105.8 degrees Fahrenheit. Respiration may become labored, rapid, and shallow. Mucous membranes can become dark and congested. Headpressing may occur. The legs, sheath, and angle of the jaw may also swell. The last sign to appear is usually a substantial, frothy nasal discharge. Death occurs approximately 2 days after clinical signs begin.

After death, humans and horses show similar pathology. During autopsy or necropsy, fluid and blood will be found in the lung area, and small red

hemorrhages will show on the lung surface. Fluids will ooze from lung surfaces when cut, and white, blood-tinged foam often fills the airways. Under a microscope, lung lesions look similar to those caused by pneumonia.

Australian Outbreak

The only known outbreak of EMV occurred in thoroughbred horses on a limited number of premises in the Brisbane area of Queensland, Australia, during September 1994. The outbreak began in Hendra, a suburb of Brisbane, where 14 horses died or were euthanized because of acute respiratory disease. Three horses from the Hendra stables that moved to other locations also were affected with EMV. Five premises in the Brisbane area were placed under quarantine because of these movements.

Australian animal and public health officials investigated the outbreak extensively, testing blood from all horses on quarantined premises and within a 0.6-mile radius of the affected Hendra stable. Authorities also tested a targeted sample of horses throughout Queensland. Of the nearly 2,000 horses tested from 630 premises, only 7 horses had a positive test result for EMV. All horses that tested positive were from the Hendra stable or from adjoining stables. Four of the seven horses recovered after showing clinical signs of EMV, and three showed no signs of the disease. All seven horses were later euthanized.

During the Hendra outbreak, Australian public health authorities diagnosed three humans with EMV. In the first case, a stablehand developed a flulike illness that lasted 6 weeks before recovery. Also, a horse trainer developed a respiratory disease and died 6 days later. Both men had close contact with an EMV-positive mare. Genetic analysis showed the virus isolated from these two men to be identical to the virus that infected the Hendra horses. A consulting veterinarian also tested positive for EMV but remained asymptomatic. An additional 157 people

considered to have been exposed to the virus tested negative for EMV.

In October 1995, the EMV was isolated from a farmer who died in Mackay, Australia, a town almost 500 miles away from Hendra. During a 5-week hospitalization period before his death, he had physical symptoms of encephalitis, not the respiratory difficulties typical of EMV. The exposure may have occurred in August 1994, when the farmer assisted with the necropsies of 2 horses, one of which was later found to be positive for EMV.

Extensive epidemiological investigation of the Mackay case found no link to the outbreak of EMV in Hendra other than timing. In fact, investigators have not identified the source of the EMV virus on the Mackay farm. No other animals or humans on the Mackay farm have shown any signs of EMV infection. All other humans and domestic animals on the farm—including approximately 85 horses and numerous goats, cats, dogs, and geese—tested negative for EMV. Nor have any cases of EMV been reported anywhere in Queensland since the 1994 Hendra outbreak, when more than 200 horses in the area surrounding Mackay tested negative as part of the surveillance sample.

Epidemiology

Humans and horses are likely to contract EMV by coming in direct contact with the nasal discharges of an infected animal. There is no evidence of human-to-human transmission of EMV. The disease appears to spread more easily from animal to animal than from animals to humans. The virus is not considered highly infectious to man, and public health officials suggest that persons handling sick horses need only exercise basic hygienic precautions.

Based on information from the Hendra outbreak, EMV also does not appear to spread easily from one premises to another. Only 2 EMV cases developed in an adjacent stable that had a total of 26 horses. Also, although 2 infected horses were moved onto another premises with 300 horses, none of these animals showed evidence of disease exposure.

Current Status

Australia has conducted continual surveillance testing for EMV, and no cases have been reported since the 1994 outbreak. To date, Australian authorities have tested more than 3,150 samples from horses, other domestic animals, and wildlife for any evidence of exposure to EMV. All samples tested have been negative. No other country has detected EMV. Australian animal health officials regularly provide updated reports to APHIS and other international health officials about their surveillance activities and any new information that could lead to better scientific understanding of this new disease.

For further information, please contact:
USDA, APHIS, Veterinary Services (VS)
Emergency Programs
4700 River Road
Riverdale, MD 20737
Telephone: (301) 734-8073